IN THE CLAIMS:

1(canceled).

2(currently amended). [The method of claim 1]

A method for determining whether avian eggs are qualified or unqualified for a premium quality based on shell characteristics, comprising the steps of:

providing a plurality of the eggs;

oscillating the shells of each egg by a non-contacting source of ultrasonic waves to obtain a single measurement from the oscillating shells that is detectable by a non-contacting detector; and

determining whether each egg is qualified or not from analysis of the single measurement;

wherein the [detected signal] single measurement comprises information comprising at least detected power as a variable against detected time-of-flight from source to detector and further comprises an information portion that is analyzed for a positive indication [comprising at least one] consisting of two sufficiently steady and strong peaks.

3(currently amended). The method of claim 2 wherein the analysis [further] comprises integrated response (IR) analysis of the [detected signal] single measurement and the information portion thereof excludes power information for times of time-of-flight slower than a benchmark corresponding to the time-of-flight value obtained in the absence of any egg or other object between the source and detector, which slower times of time-of-flight presumptively correspond to reflected noise.

4(original). The method of claim 2 wherein the positive indication is correlatable to a given quality determination of egg shell quality which in turn is associated with such a quality determination of the avian egg as relating to fertility or hatching or hatchling viability.

5(currently amended). The method of claim [1] 2 wherein the [detected signal comprises an information portion that is analyzed for either or both a positive indication comprising at least one sufficiently steady and strong peak and/or a negative indication comprising relatively unsteady and weak signals across the width of the] information portion of the single measurement excludes power information for times of time-of-flight slower than a benchmark corresponding to the time-of-flight value obtained in the absence of any egg or other object between the source and detector, which slower times of time-of-flight presumptively correspond to reflected noise.

6(currently amended). The method of claim [1] 2 wherein eggs qualified for premium quality are graduated to hatchery operations.

7(canceled).

8(canceled).

9(currently amended). [The method of claim 8]

A method for sorting out sub-grade avian eggs from premium grade avian eggs comprising the steps of:

providing a plurality of the eggs;

positioning each egg in the path of a non-contacting, non-frequency sweeping source of ultrasonic waves and in relative proximity to a non-contacting detector of a signal obtained from the egg under the influence of the ultrasonic waves; and

determining the eggs as premium grade or sub-grade based upon analysis of the detected signal;

wherein the detected signal is transformable into a profile of detected signal strength versus time-of-flight from source to detector, which profile comprises an information portion that is analyzed for a positive indication of premium grade comprising [at least one] two sufficiently steady and strong peaks.

10(currently amended). The method of claim 9 wherein the analysis [further] comprises integrated response (IR) analysis of the detected signal's strength versus time-of-flight values and the information portion thereof excludes signal strength information for times of time-of-flight slower than a benchmark corresponding to the time-of-flight value obtained in the absence of any egg or other object between the source and detector, which slower times of time-of-flight presumptively correspond to reflected noise.

11(original). The method of claim 9 wherein the positive indication of premium grade is correlatable to egg shell quality which in turn is associated with such a quality determination of the avian egg as relating to fertility or hatching or hatchling viability.

12(currently amended). The method of claim [8] 9 wherein the [detected signal is transformable into a profile of detected signal strength versus time, which profile comprises an information portion that is analyzed for either or both a positive indication of premium grade comprising at least one sufficiently steady and strong peak and/or a negative indication of premium grade comprising relatively unsteady and weak signals across the width of the] information portion of the detected signal excludes signal strength information for times of time-of-flight slower than a benchmark corresponding to the time-of-flight value obtained in the absence of any egg or other object between the source and detector, which slower times of time-of-flight presumptively correspond to reflected noise.

13(currently amended). The method of claim [8] 9 wherein eggs [sorted into the] determined to be premium grade are graduated to hatchery operations.

14(canceled).

15(canceled).

16(currently amended). [The apparatus of claim 15]

Apparatus for determining premium grade avian eggs from sub-grade avian eggs comprising:

a source of ultrasonic waves and an opposed ultrasonic detector in the path thereof spaced sufficiently to admit therebetween an egg without contact from either, wherein the egg produces a signal detectable by the detector in response to blocking the path of the ultrasonic waves from the source; and

a processor for determining the eggs as premium grade or not based upon analysis of the detected signal;

wherein the processor includes services of an analyzer that transforms the detected signal into a profile comprising signal strength versus time-of-flight from source to detector, which profile comprises an information portion that is analyzed for a positive indication of premium grade comprising [at least one] two sufficiently steady and strong peaks.

17(currently amended). The apparatus of claim 16 wherein the analyzer [further] undertakes integrated response (IR) analysis of the detected signal's strength versus time-of-flight values and the information portion thereof excludes signal strength information for times of time-of-flight slower than a benchmark corresponding to the time-of-flight value obtained in the absence of any egg or other object between the source and detector, which slower times of time-of-flight presumptively correspond to reflected noise.

18(original). The apparatus of claim 16 wherein the positive indication of premium grade is correlatable to egg shell quality which in turn is associated with such a quality determination of the avian egg as relating to fertility or hatching or hatchling viability.

19(currently amended). The apparatus of claim [15] 16 wherein the [processor includes services of an analyzer that transforms the detected signal into a profile of detected signal strength versus time, which profile comprises an information portion that is analyzed for either or both a positive indication of premium grade comprising at least one sufficiently steady and strong peak and/or a negative indication of premium grade comprising relatively unsteady and weak signals across the width of the] information portion of the detected signal excludes signal strength information for times of time-of-flight slower than a benchmark corresponding to the time-of-flight value obtained in the absence of any egg or other object between the source and detector, which slower times of time-of-flight presumptively correspond to reflected noise.

20(currently amended). The apparatus of claim [15] 16 wherein eggs [sorted into the] determined to be of premium grade are graduated to hatchery operations.